

HYDROGEN SENSOR CONTAINED OPTICAL CABLE

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Abstract

PURPOSE:To repair a cable systematically by mounting an optical fiber core which has specially large characteristic variation in the presence of gaseous hydrogen in addition to actually used optical fiber cores.
CONSTITUTION:Up to five optical fiber cores among six cores of one unit 20 are optical fiber cores 22 which are used normally and actually, but one core indicated by 24 is for a sensor which detects gaseous hydrogen and has high sensitivity to the gaseous hydrogen. In general, more the dopant of the cores of an optical fiber contains P, the higher the sensitivity to the gaseous hydrogen is, but the concentration of P is properly about 1mol%. A material which produces no gaseous hydrogen by itself is used properly as a cladding material and the deterioration in transmission characteristics of the core 24 for the sensor is investigated periodically. Consequently, the life of the actually used optical fiber cores 22 is estimated to plane repair.

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